REMARKS

Claims 1 to 63 were pending in the application at the time of examination. The restriction requirement was made final. The rejection objected to the specification. Claims 1, 2, 4 to 6, 16, 17, 19 to 21, 31, 32, 34 to 36, 46, 47 and 49 to 51 stand rejected as anticipated. Claims 3, 7, 18, 22, 33, 37, 48 and 52 stand rejected as obvious. Claims 1 to 7, 16 to 22, 31 to 37 and 46 to 52 stand provisionally rejected for obviousness-type double patenting.

Election/Restriction

Applicant again respectfully requests reconsideration and withdrawal of the final restriction requirement. The rationale for the requirement fails to consider the claims as a whole. Applicant did not assert, as stated in the rejection, that Group II is either "a method of making such an encoded opcode ...." or "a method for making such an obfuscated program. Rather Applicant stated:

> Claim 8 in Group II, for example, recites a method of making, i.e., creating, an opcode value encoding scheme. Thus, the product made by Group II claims is an opcode value encoding scheme.

Thus, Applicant stated that a product was made by the Group II and identified the product. It is illogical to assert that when a claim recites that something is created that the result of such a creation is not the element created. The very meaning of create means creation of the recited element.

Next, Applicant stated:

> Claim 1 in Group I is a method for using such a scheme, i.e.;

>> receiving an obfuscated application program, said obfuscated application program comprising at least one instruction opcode value encoded using

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<u>one of a plurality of instruction set opcode value</u>
<u>encoding schemes</u>

Applicant specifically emphasized the use of the product created by the Group II claims.

Thus, the Group I claims recite a method that uses the creation of the Group II claims, as originally stated, based upon nothing other than the plain meaning of the claims. The rejection did not address this and instead simply dismissed it as incorrect. This is error. There has been no showing that Group I and Group II claims are patentably distinct and independent when they are properly construed as a whole. Accordingly, the finality of the rejection is premature because all issues have not developed for appeal.

Similarly, the Group III claims recite a structure that includes the results of using the product created by the Group II claims. The claims expressly recited "said data structure an obfuscated application program comprising at least one instruction opcode value encoded <u>using one of a</u> <u>plurality of instruction set opcode value encoding schemes</u>"

Thus, the structure includes at least one instruction opcode value that was obtained using the results of the Group I claims. There simply is no combination and subcombination, as those words are defined in the MPEP, associated with the plain meaning of these claims.

Therefore, when the claims are considered as a whole, the characterization as combination and subcombinations are directly contradicted by the claim language itself. At the very least, the Group I and Group II claims should be considered. Applicant yet again respectfully requests reconsideration and withdrawal of the restriction requirements.

Objections to the Specification

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With respect to Paragraph [0015] Applicant previously noted:

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With respect to the objection to paragraph [0015], Applicant respectfully submits that the statement:

The process can be implemented as instructions executed by such hardware, hardware alone, or any combination thereof.

is correct and understandable. The statement indicates that the process can be implemented using code and hardware that executes that code, hardware that does not rely upon executing code, e.g., an ASIC, or a combination of the two. Such combinations are well known and so this statement is clear and understandable.

These comments are so well known in the art that Applicant is surprised that the comments were not accepted. Nevertheless, the final rejection stated:

On page 34 of the remark, the Applicant explained argues ". . . hardware that does not reply upon executing code, e.g., an ASIC". What is ASIC? Please clarify. Further, ASIC is not supported in the original disclosure. Therefore, the objection is maintained.

Applicant respectfully notes that Paragraph [0016], which was quoted in the prior response at pg. 37, stated:

In addition, those of ordinary skill in the art will recognize that devices of a less general purpose nature, such as hardwired devices, field application programmable logic devices (FPLDs), including field application programmable gate arrays (FPGAs) and complex application programmable logic devices (CPLDs), application specific integrated circuits (ASICs), or the like, may also be used without departing from the scope and spirit of the inventive concepts disclosed herein.

Thus, ASIC was expressly defined in the specification contrary to the statement in the rejection. Moreover, the use of ASICs and programmable devices is well known in the art and the MPEP discourages inclusion of extensive discussion in a disclosure that is well-known in the art. Further, it is well known that if a process is performed by executing software repeatedly on a processor (hardware) that

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performance advantages may be obtained by implementing such
a process in hardware only. Even in cases where software is
not executed repeatedly, implementation of the process in
hardware typically provides performance advantages and so
may be beneficial in some applications.

The statement in paragraph [0015] is simply based on
this knowledge and indicates that the processes can be
implemented either by executing software on hardware or by
using hardware alone, or by a combination of the two.
Almost any computer includes a combination of the two. As
previously stated, one of skill in the art would have no
trouble understanding this paragraph and in particular, when
the paragraph is taken in the context of the surrounding
paragraphs. Moreover, Applicant searched the PTO issued
patent database for "hardware, hardware alone, or any
combination thereof" and found more than thirty issued
patents with this phrase. This is further evidence that the
phrase is not confusing and is well understood. Applicant
respectfully requests reconsideration and withdrawal of the
objection to paragraph [0015].

The Examiner is correct with respect to paragraph
[0040]. Applicant has amended paragraph [0040] to obtain
consistency in the reference numerals with respect to the
first and second portions. Entry of the amendment is
respectfully requested.

§ 102 Rejections

Claims 1, 2, 4, 16, 17, 19, 31, 32, 34, 46, 47 and 49
remain rejected under 35 U.S.C. § 102(b) as anticipated by
U.S. Patent Application Publication No. 2004/0003264,
hereinafter referred to as Zeman.

In maintaining the rejection, the final action stated
in part:

Second, Zeman teaches in par. [0073]-[0077]
"..,replacing randomly selected bytes with one-byte
instructions. Thus, setp [sic] 804 preferably comprises

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> creating a **list of one-byte instructions** that can be
> used to replace the randomly selected bytes... . At step
> 808, the bytes selected for change at step 806 are
> replaced with new bytes... . these new bytes are
> preferably taken from **the list of one-byte** instructions
> for the platform on which the code will operate.
> Typically, these bytes will be chosen from the list
> created at step 804. (Emphasis in original)

The rationale for continuing the rejection indicates
that Zeman utilized a single list. Therefore, the rationale
has failed to rebut the prior remarks:

> . . . While this may be true, it fails to teach
> that the opcode instruction value was "encoded using
> <u>one of a plurality of instruction set opcode value
> encoding schemes</u>." The rejection has failed to cite
> any teaching of at least two **instruction set** opcode
> value encoding schemes.

Using one of a plurality of encoding schemes provides a
further level of obfuscation that was neither taught nor
suggested by Zeman as emphasized by the Office in the final
rejection. Accordingly, the rejection has failed to
demonstrate that Zeman teaches the invention in the same
level of detail as recited in these Claims, because there
has been no demonstration that the opcode value encoding in
Zeman is <u>one of a plurality of instruction set opcode value
encoding schemes</u>. Using a single list teaches nothing about
a plurality of lists. Therefore, Zeman fails to anticipate
these claims. Applicant respectfully requests
reconsideration and withdrawal of the anticipation rejection
of each of Claims 1, 16, 31 and 46.

The rationale for the continuing anticipation rejection
of Claims 2, 17, 32 and 47 continues to misconstrue Zeman.
Paragraphs [0073] to [0080] of Zeman are presented under the
heading "[0072] Exemplary Obfuscation Process" and are
directed to obfuscating the code. Paragraph [0080] states
"The result of the process of Fig. 8 is a complete
executable . . . that contains obfuscated code and is ready
to be used by a computer." Thus, Zeman makes it clear that

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the cited paragraph [0078] is part of the obfuscation process and therefore is not done after the obfuscated code is received. Thus, yet again, the rationale for continuing the rejection has failed to rebut Applicant's prior remarks:

> . . . The rejection has failed to cite any teaching that any of the operations in the exemplary code obfuscation process is performed in response to receiving an obfuscated application program as recited in these claims.
> In fact, the rejection requires a modification by taking a step from a process used to obfuscate code and then using that step after the obfuscated code is received. This cannot be done in an obviousness rejection and so cannot form the basis for an anticipation rejection.

Zeman at paragraphs [0081] to [0085] describes the deobfuscation process and these teachings directly contradict the interpretation presented in the rejection. Applicant respectfully notes that simply repeating an incorrect interpretation, as was done on pg 16 of the final action, does not make the interpretation correct.

The rationale for continuing the rejection also stated:

> First, claims 2, 17, 32 and 47 are either dependent or similar claims of claims 1 and 5. Since the arguments for the independent claims 1 and 5 are traversed, therefore, claims 2, 17, 32 and 47 are also not allowable.

This statement is also incorrect. Applicants pointed our reasons, as noted above, why these claims were patentable in addition to the reasons given for the independent claims. Any dependent claim may be allowable if the recitation in that claim is patentable when the dependent claim is combined with the claims from which that claim depends. Therefore, simply demonstrating that the independent claims are not patentable is not sufficient to establish a prima facie rejection.

Claims 2, 17, 32 and 47 distinguish over Zeman for reasons in addition to those given above, and incorporated

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herein by reference, for Claims 1, 16, 31 and 46. Applicant respectfully requests reconsideration and withdrawal of the anticipation rejection of each of Claims 2, 17, 32 and 47.

The rejection of Claims 4, 19, 34 and 49 relied upon healing table 600 as teaching exactly the dispatch table of Claims 1 and 31. The above comments with respect to the rationale for continuing the rejection of Claims 1 and 31 are also applicable to these claims and are incorporated herein by reference. The rejection has still failed to cite any teaching of <u>at least two non-standard **instruction set** opcode value encoding schemes.</u> Accordingly, the rejection has failed to demonstrate that Zeman teaches the invention in the same level of detail as recited in Claim 4, 19, 34 and 49, because there has been no demonstration that the opcode value encoding in Zeman is one of a plurality of non-standard instruction set opcode value encoding schemes. Therefore, Zeman fails to anticipate these claims. Applicant respectfully requests reconsideration and withdrawal of the anticipation rejection of each of Claims 4, 19, 34 and 49.

Claim 5, 6, 20, 21, 35, 36, 50 and 51 stand rejected under 35 U.S.C. § 102(e) as anticipated by U.S. Patent No. No. 6,694,435 hereinafter referred to as Kiddy.

The rejection of Claims 5, 20, 35, and 50 stated in part:

> transforming said application program code into transformed application program code that uses one of a plurality of opcode value encoding schemes of a dispatch table associated with said application program(e.g., col. 5, lines 45-67 and col. 6, lines 1-47);

Applicant respectfully traverses the anticipation rejection of each of Claims 5, 20, 35, and 50. The rationale for continuing the rejection stated:

> Kiddy teaches in col. 6, lines 24-47, "**Fig. 7** shows a detailed example of interleaving parts from two streams into an obfuscated stream.. . .**Stream 720** is a stream of byte codes for the purpose of obfuscation. Stream

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720 may be a **stream** of byte codes... of the **same class...another class**... **Stream 720**can be broken into parts 722, 724, 726 and 728... ". **(Emphasis in original)**

Therefore, Kiddy discloses a dispatch table.

Breaking a stream of code into parts and then interleaving the parts fails to teach a table. Moreover, interleaving fails to teach "one of a plurality of opcode value encoding schemes." Interleaving does nothing to the opcode values as demonstrated in the interleaved table of Fig. 7 of Kiddy. The opcode values are not taught as being encoded.

Again, Applicant respectfully notes that for an anticipation rejection it is not enough that Kiddy describes a method of obfuscation, but rather, according to the MPEP, Kiddy must show each limitation in the same level of detail and arranged as required by the claim. MPEP § 2131, 8th Ed., Rev. 5, p. 2100-67 (August 2006). The rejection has failed to cite any teaching of a table and just summarily concludes that interleaving teaches a table. Even if this were correct, the opcode values are not encoded using such a table. Therefore, Kiddy fails to teach the invention in the level of detail required for anticipation. Applicant respectfully requests reconsideration and withdrawal of the anticipation rejection of each of Claims 5, 20, 35, and 50.

Applicant respectfully traverses the anticipation rejection of each of Claims 6, 21, 36 and 51. Each of these claims distinguishes over Kiddy at least for the same reasons as the independent claim from which it depends. Applicant respectfully requests reconsideration and withdrawal of the anticipation rejection of each of Claims 6, 21, 36 and 51.

§ 103 Rejections

Claims 3, 7, 18, 22, 33, 37, 48 and 52 stand rejected under 35 U.S.C. 103(a). Applicant respectfully continues to

traverse the use of Official Knowledge with respect to Claim 3. The issue is not the selection of the table but rather the fact that multiple tables are used. Zeman, taken as a whole taught that a single table was sufficient. Zeman failed to recognize, as did the rejection, that additional obfuscation is obtained by selection from one of multiple tables. There still has been no showing of why additional tables would be needed or how the invention of Zeman would work with multiple tables. Nevertheless, assuming that the combination of references is correct for each of these claims, the additional material relied upon from the secondary reference does not correct the deficiencies of Kiddy with respect to the independent claims from which these claims depend. Therefore, each of Claims 3, 7, 18, 22, 33, 37, 48 and 52 distinguish over the combination of references for at least the same reasons as the independent claims. Applicant respectfully requests reconsideration and withdrawal of the obviousness rejection of each of Claims 3, 7, 18, 22, 33, 37, 48 and 52.

> Provisional Double Patenting Rejection in View of U.S. Patent Application Serial No. 10/672,183.

The rejection stated in part "claims 1-48 of the copending application contain all the limitations of claims 1 to 7, 16 to 22, 31 to 37 and 46 to 52 of the instant application." The rationale for continuing the rejection stated:

> The limitations "using a current instruction counter value" in the copending application are obvious to a person with ordinary skill in the art in comparison with the current application. . . . Although the conflicting claims are not identical, they are not patentably distinct from each other and encompass the same subject matter.

Applicant respectfully submits that encompassing the same subject matter is not the proper standard for

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determining obviousness. According to this standard, any method of obfuscation renders all other methods of obfuscation obvious, because the methods encompass the same subject matter. This is in error and the rejection has simply reduced the claims to a gist.

For example, Claim 1 in U.S. Patent Application Serial No. 10/672,183 recites:

> receiving an obfuscated application program, said obfuscated application program comprising at least one instruction opcode value encoded using one of a plurality of instruction set opcode value encoding schemes;
> receiving an application program instruction corresponding to a current instruction counter value;
> selecting an instruction dispatch table based at least on said current instruction counter value, wherein said selecting comprises performing modulo-n arithmetic operation on said current instruction counter value, where n is the number of dispatch tables, each of said dispatch tables associated with a unique number between 0 and n-1, and selecting the instruction dispatch table associated with the result of said modulo-n arithmetic operation; and
> executing said application program instruction using said selected instruction dispatch table to obtain a reference to an instruction implementation method corresponding to an opcode value of said application program instruction.

The claims in the instant application do not require any modulo-n arithmetic operation. Thus, one can practice the claims of the instant application without infringing the claims of the '183 application. Further, general knowledge of using a current instruction value fails to teach or suggest anything about why the invention would work without the modulo-n arithmetic. The rejection has failed to cite any teaching or suggestion in the claims of either application for eliminating the use of modulo-n arithmetic. It is the claims that must be compared and such a comparison shows that the instant application includes limitations that are neither suggested nor disclosed by the claims in U.S. Patent Application Serial No. 10/672,183 and the '183 requires limitations that are not found in the instant

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application. Accordingly, the obivousness-type double patenting rejection of Claims 1 to 7, 16 to 22, 31 to 37 and 46 to 52 is not well founded. Applicant respectfully requests reconsideration and withdrawal of the provisional obivousness-type double patenting rejection of Claims 1 to 7, 16 to 22, 31 to 37 and 46 to 52 in the instant application in view of Claims 1 to 48 in U.S. Patent Application Serial No. 10/672,183.

Provisional Double Patenting Rejection in View of U.S. Patent Application Serial No. 10/673,021.

The rejection asserts that the Claims in U.S. Patent Application Serial No. 10/673,021 include all the limitations of the instant application. The rationale for continuing the rejection stated:

> The limitations "using a current instruction counter value" in the copending application are obvious to a person with ordinary skill in the art in comparison with the current application. Further, the limitation "a dispatch table" in the instant application is obvious to a person with ordinary skill in the art in comparison with the co-pending application 10/673,021. Although the conflicting claims are not identical, they are not patentably distinct from each other and encompass the same subject matter.

Applicant respectfully submits that encompassing the same subject matter is not the proper standard for determining obviousness. According to this standard, any method of obfuscation renders all other methods of obfuscation obvious, because the methods encompass the same subject matter.

This is in error and the rejection has simply reduced the claims to a gist. For example, the claims in the instant application utilize a dispatch table and a plurality of instruction set opcode value encoding schemes.

As noted previously, Claim 1 of U.S. Patent Application Serial No. 10/673,021 recites:

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receiving an application program that comprises application program instructions and application program data;

determining an application program instruction location permutation to apply to a current instruction counter value;

determining an application program data location permutation to apply to a current data location counter value;

receiving said current instruction counter value;

applying said application program instruction location permutation to said current instruction counter value to obtain a first reference to an application program instruction in an instruction stream to execute;

if said application program instruction references application program data, applying said application program data location permutation to data referenced by said application program instruction to obtain a second reference to data to access, said data to access interleaved with application program instructions in said instruction stream; and

executing said application program instruction.

The rationale for the rejection reduces explicit claim limitations to a gist "using a current instruction counter value" and then rejects that gist. This is error. The claim recites that the application program instruction location permutation is applied to the program counter value. This is fundamentally different from obfuscating and deobfuscating opcode values via a dispatch table. Applying a permutation to a current instruction counter value fails to teach or suggest anything concerning obfuscating and deobfuscating opcode values and in fact teaches away from such processes because obfuscation and deobfuscation is obtained without processing opcode values. The obviousness rejection is superficial and fails to consider the claims as a whole. It also fails to explain or consider how permuting instruction counter and data values has anything to do with opcode values. Accordingly, the provisional obviousness-type double patenting rejection is not well founded.

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Applicant respectfully requests reconsideration and withdrawal of the provisional obivousness-type double patenting rejection of Claims 1 to 7, 16 to 22, 31 to 37 and 46 to 52 in the instant application in view of the Claims in U.S. Patent Application Serial No. 10/673,021.

Claims 1 to 63 remain in the application. Claims 8 to 15, 23 to 30, 38 to 45 and 53 to 63 stand withdrawn. For the foregoing reasons, Applicant(s) respectfully request allowance of all pending claims. If the Examiner has any questions relating to the above, the Examiner is respectfully requested to telephone the undersigned Attorney for Applicant(s).

CERTIFICATE OF TRANSMISSION

I hereby certify that this correspondence is being facsimile transmitted to the U.S. Patent and Trademark Office, Fax No. 571-273-8300, on December 18, 2007.

Mona Marshall   December 18, 2007
Mona Marshall   Date of Signature

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